Understanding the association between pressure ulcers and sitting in adults what does it mean for me and my carers? Seating guidelines for people, carers and health & social care professionals

Stephens, M and Bartley, CA

http://dx.doi.org/10.1016/j.jtv.2017.09.004

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Understanding the association between pressure ulcers and sitting in adults what does it mean for me and my carers? Seating guidelines for people, carers and health & social care professionals

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ABSTRACT

The aim of the publication was to develop a practical guide for people, carers and health and social care professionals on how the research and evidence base on pressure ulcer prevention and management can be applied to those who remain seated for extended periods of time. This publication was developed at the request of the Tissue Viability Society in order to revise the original seating guidelines from 2008 as evidence and subsequent care has moved forward in relation to this area. Since 2008, the costs for the prevention and management of pressure ulcers have increased significantly and there is limited published advice from health and social care organisations on seating and preventing pressure ulcers. These guidelines have been written for:

- People
- Carers
- Health and Social Care professionals
- Education and training staff
- Independent sector.

Who live or work in primary, secondary, and tertiary settings.

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1. Background

‘A pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear’ [1]. Remaining seated for extended periods of time increases the risk of pressure ulcers development over the buttocks, as the soft tissue in this area is squashed between two surfaces: the seat and the bones of the pelvis [2–4]. How long this destruction to the skin takes can often be irrelevant as some pressure ulcers develop quickly and others take longer [5]. The process is dependent on other factors such as health status, disability, ability to change position, and maintaining an upright-seated position without slumping or sliding [5].

A key study [6] found that when sitting naturally only a small amount of pressure for one to two hours could lead to the development of a pressure ulcer as body weight in this position, is redistributed over a smaller area [7] resulting in high pressures in the buttocks [8,9]. This extra pressure upsets the blood flow through the skin starving the area of oxygen and nutrients, and if this goes unrelieved begins to break down, leading to the development of a pressure ulcer.

To help understand the severity of damage to the skin from pressure, an international pressure ulcer staging system is used (Figs. 1–6) [10]. The higher the stage the more severe the pressure ulcer and damage to the skin and underlying tissues.

1.1. Category/stage one (Fig. 1)

A category/stage one pressure ulcer is superficial damage and the affected area of skin appears discoloured (red in people with...
white skin, and purple/bluish in people with darker skin tones). The skin is not broken, but it may be painful, itchy, and feel warm and squishy, or hard on touching.

1.2. Category/stage two (Fig. 2)

A category/stage two pressure ulcer will look either like an open wound or a blister as the surface of the skin has been damaged.
1.3. Category/stage three (Fig. 3)

A category/stage three pressure ulcer can appear as deep opening of the skin depending where they are on the body. Damage has occurred to both the skin and soft tissues.

1.4. Category/stage four (Fig. 4)

A category/stage four pressure ulcer is the most severe type. Damage has occurred to the skin, soft tissue, and muscle; bone may often be visible. People who develop pressure ulcers of this category can develop life threatening infections.

1.5. Unstageable (Fig. 5)

An unstageable pressure ulcer is one that is covered with dead tissue however the extent of damage cannot be assessed until the dead tissue has been removed by a trained healthcare professional.

A suspected deep tissue injury is where the intact skin looks purple or maroon in colour or may have a blood-filled blister. This is due to damage of the soft tissue and on touching may be painful, firm, mushy, boggy, warm or cool.

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**ALERT**

If an area of skin has changed colour (white skin to red or dark skin to blue or purple) check the skin.

**White skin:** lightly press on the red area. It should go white and when you remove your finger it should go red again. This is called the blanch test and is a normal skin reaction.

**Dark skin:** may not change when you apply touch with a finger, so check for other signs such as colour change, temperature change, swelling or hardness. These should subside within 15 minutes.

If the skin does not react (white skin) or subside (dark skin), seek professional advice.

Link to video for online version for blanch test:

https://www.youtube.com/watch?v=THjmjDDDoc
A recent survey in England found that 700,000 people are affected by pressure ulcers each year at a cost to the NHS of more than £3.8 million every day [12]. Pressure ulcers are often associated with people who lie in bed, however research indicates that people who sit for extended periods of time are more at risk of pressure ulcers developing [13].

Even though sitting has been associated with pressure ulcers there is still a lack of evidence-based guidance to help people make informed decisions regarding their day-to-day care in this area [14]. This document has been written to provide guidelines for the prevention and management of pressure ulcers for people who remain seated for extended periods of time. The method used to obtain the evidence to inform this document is shown in appendix i. The guideline is inclusive of all people with short and long-term mobility problems and will not be condition specific as this may exclude certain population groups. Although formal definitions of short and long-term mobility are not available, the International Classification of Functioning, Disability and Health [15] has been considered to provide context in comparison to other literature. The term seated for extended periods of time will be used instead of the long term seated individual as this includes people with short and long-term mobility issues (see Fig. 7).

Fig. 5. a Slough and eschar insert here. b Dark Eschar.

Fig. 6. Deep tissue pressure ulcer: persistent non blanchable deep red, marron or purple discolouration. Suspected deep tissue injury (Fig. 6).
2. Where do pressure ulcers develop when seated? [10]

![Fig. 7. Areas at risk of pressure ulcer damage when seated and areas at risk of pressure ulcer damage when seated slouched in the chair.](image)

3. Is there anything that increases a person’s risk of developing pressure ulcers?

There are many different factors that can increase a person's risk of developing a pressure ulcer; this can include factors such as (see Fig. 8):

The factors named above are not exhaustive as there are other less common risk factors [10]. There is a useful test to assess risk on the React to Red website [11], this can be used by you, your carers and any health or social care professional who may be attending to your physical care needs (see useful links/resources at the end of the document).

It is important to assess risk factors for pressure ulcer formation for people that are seated, as this will help those providing care to be risk aware and implement care and equipment to reduce that risk. Health and social care professionals may use a risk assessment tool to help identify risk of developing pressure ulcers, so please talk to your health or social care professional about the result [10].

4. What is the best possible seated position and what seat adjustments are required?

Regardless of whether a person has a short or long-term mobility issue, there are essential factors that should be considered which are set out in Table 1 [14,19].

5. What makes an ideal seating assessment?

Seating assessment is complex and requires a trained individual who can carry out a comprehensive, evidence based and person-centred approach [16,18], which should be documented in the person's medical records. A key part of any seating assessment is the requirement to inform and educate the individual, their family and carer about:

- why the chair or cushion may be provided
- how to use and maintain this equipment
- the potential impact of their lifestyle on the prevention/management of pressure ulcers.

This information should be followed up in writing and include...
6. Who might be involved in the seating assessment?

Occupational therapists are often the healthcare professional who will carry out a seating assessment and prescribe equipment. This is often in collaboration with other members of the interprofessional team such as the: Tissue Viability Nurse, Doctor, Physiotherapist or Clinical Engineer [22].

7. What interventions can I expect after a seating assessment?

After a seating assessment is completed, the health care professional may recommend a piece of equipment. Given the wide range of chairs, wheelchairs, and seat cushions available, as well as the wide range of physical conditions for which they may be prescribed; it is not possible to provide specific guidance upon which any course of action the person will take and potential risks if they differ with current best practice. The following features should be considered in combination with the healthcare professional’s clinical judgement, although this is not definitive (Fig. 11):

Table 1
Factors to consider when assessing seating.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair seat width</td>
<td>The width of the seat is important as it can affect a person's posture and pressure areas. If a seat is too narrow it can lead to pressure damage to the hips, buttocks, and the back of the knees. If a seat is too wide, the person may feel unsupported which could result in posture and pressure problems with the hips and spine. This may also make it difficult to fix equipment to the seating system such as lap belts, hip and thigh supports. Good practice recommends a minimum of 2.5 cm clearance between the hip and the side of the chair/wheelchair. If a seat is too narrow, the individual may slide down the seat in order to place their feet on the floor or footplates to support themselves (Fig. 9). This could also lead to pressure damage to the skin around the tailbone area. To check the appropriateness of the height of the seat for an individual make sure they can comfortably place their feet on the floor or foot plate with the ankle ideally in a normal position. Adding extra cushions will affect seat height.</td>
</tr>
<tr>
<td>Chair seat height</td>
<td>If the seat depth is too long, this may cause sliding down the seat in order to reach the front edge of the seat with the knees. The person is likely to slide forward to place their feet on the footplate or floor, affecting their posture, stability and an increase in pressure on the buttocks. Pressure ulcers may also occur against the back of the knee. If the seat depth is too short pressure is increased at the thighs with a risk of pressure ulcers in the mid-thigh region. Good practice recommends a minimum of 2.5 cm clearance between the edge of the seat and the back of the knees (Fig. 10).</td>
</tr>
<tr>
<td>Chair seat depth</td>
<td>If the back width is too narrow, it can result in edges/back posts digging into the person's back and insufficient room for supports.</td>
</tr>
<tr>
<td>Chair back rest</td>
<td>The backrest provides support and strength to the trunk. If the backrest is too low, it can lead to postural problems, weakened sitting balance and cause incorrect placement of supports for the shoulder/chest increasing the risk of pressure damage. If the backrest is too high, it can affect function such as wheelchair propulsion. Shoulder blade movement can be reduced leading to postural problems in the trunk affecting sitting balance. Back width is usually set by the seat width, but can be different with certain wheelchair/seat back choices. Chest width and the need for trunk supports are important considerations. If the back width is too wide, it may hinder fixing supports and arm function.</td>
</tr>
<tr>
<td>Chair seat to back angle</td>
<td>Not all chairs offer the person a natural sitting position as the backrests are often slightly reclined. This may result in sliding down in the seat and increasing the risk of pressure damage.</td>
</tr>
<tr>
<td>Chair arm rests</td>
<td>Armrests provide steadiness in sitting and help the person to transfer safely. Armrest height needs to support the bent elbow when seated as well as the possibility of additional equipment such as trays and arm supports. If the armrest is set too high, it can increase pressure on the elbow joint causing pain and discomfort. If the armrest is set too low, it can create postural issues that contribute to pressure damage in the buttocks due to lack of support for the elbows, shoulders and trunk. Armrest length varies depending on the amount of support required. If the armrest is too long, it can stop the chair from being positioned under a table.</td>
</tr>
<tr>
<td>Chair leg rests/foot plate</td>
<td>If the armrest is too short, it may result in difficulty with sit-stand transfers and may not support equipment such as lap trays. In the best possible seated position, the length of the leg rest should be set so that the thigh is supported correctly on the seat with the foot comfortably placed on the footrest or floor. Ankle and foot deformities need to be taken into consideration. If the leg rest length is too long it can cause increased pressure on the buttocks and thighs and may result in the person sliding down in the chair to meet the footplates/floor. If the leg rest length is too short, it can increase pressure on the buttocks, calves and heels, which will be forced against the leg rest hangers. The standard setting of a footplate is a 90° angle, however people with fixed postural problems of the ankle will need the footplate adjusted to meet their needs.</td>
</tr>
<tr>
<td>Head rest</td>
<td>A headrest is important for people with weak neck muscles and who are unable to hold their head up independently. A headrest can help with breathing and swallowing as well helping the person to maintain eye contact. Care should be taken as pressure can increase at the back of the head causing damage.</td>
</tr>
</tbody>
</table>

Using a footstool will not help reduce swelling (oedema) of the legs if and the position puts additional pressure on the tailbone and buttocks increasing the risk of pressure ulcers. They may also impede the sit to stand transfer and mobility. There are many guidelines healthcare professionals refer to when dealing with swelling of the legs and therefore their advice must be sought on what is considered appropriate for your condition and cause of swelling.
cushion or chair/wheelchair to provide for each individual with short or long-term mobility problems. However, general guidance suggests that people with seating needs must have the ability to access advice and equipment from wheelchair or community services in a timely manner [23].

Adults who remain seated for longer periods of time need to have regular follow-up of their pressure-redistribution needs, which may lead to a change or replacement of equipment if necessary.

In order for the person to both accept and use the seating equipment there may need to be a trade-off between what the healthcare professional considers the ideal seating should be, and what is manageable for the individual’s lifestyle, capabilities and personal preference [16]. This can sometimes involve careful negotiation as the preferences can differ to those of the health professional. Fig. 12 illustrates the priorities for people and health professionals [16]. Equipment abandonment is more likely if this discussion does not take place [20,21].

After an assessment, there may be referrals to other services such as a Tissue Viability Nurse, engineer etc.

8. Cushion and static chair selection

There are many different types of pressure redistributing seating equipment available to help prevent and manage pressure ulcers such as:

- a single cushion to use on a wheelchair or chair
- an integrated cushion into a seating system
- a bespoke custom-made cushion.

There is little research to demonstrate that one cushion is better than another [14,17] and decisions about specific cushions are often based on individual opinions. It is important to consider several factors in cushion prescription such as what the cushion is made of.
and how it performs [2]. Healthcare professionals that assess the properties of the cushion/chair take into account the factors listed in Fig. 9. However, particular attention is paid to reducing the pressure exerted on the areas at risk, managing temperature and humidity at the buttocks, and comfort [20]. There are advantages and disadvantages to consider with all forms of cushion.

Static cushions/chairs such as those made using foam, gel, air, or water are made to decrease the risk of tissue damage by redistributing pressure at the bony points in the pelvic area of the seated individual. Table 2 provides a list of the most commonly used materials used in cushions and chairs, which are currently commercially available in the United Kingdom [20–39].

<table>
<thead>
<tr>
<th>The person</th>
<th>The chair/cushion</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Past medical history</td>
<td>• Type</td>
</tr>
<tr>
<td>• Current health status (physical &amp; mental)</td>
<td>• Size</td>
</tr>
<tr>
<td>• Pressure ulcer history/risk assessment</td>
<td>• Hours to be spent in the chair</td>
</tr>
<tr>
<td>• Body size and proportions</td>
<td>• Temperature and humidity when seated</td>
</tr>
<tr>
<td>• Posture</td>
<td>• Interface Pressure Mapping</td>
</tr>
<tr>
<td>• Ability to transfer/mobilise/pressure relieve</td>
<td>• Function of the chair</td>
</tr>
<tr>
<td>• Level of independence</td>
<td>• Additional supports</td>
</tr>
<tr>
<td>• Nutrition</td>
<td>• Comfort</td>
</tr>
<tr>
<td>• Medication</td>
<td>• Material</td>
</tr>
<tr>
<td>• Continence</td>
<td>• Durability</td>
</tr>
</tbody>
</table>

Table 2. The most commonly used materials in cushions and chairs, which are currently commercially available in the United Kingdom [20–39].

#### Seating assessment

<table>
<thead>
<tr>
<th>Carer</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Adjustability of chair</td>
<td>• Risk assessment: environment, person and carer</td>
</tr>
<tr>
<td>• Manoeuvrability</td>
<td>• What is the chair to be used for?</td>
</tr>
<tr>
<td>• Easy to maintain and clean</td>
<td>• Environmental aspects: size of room, doorway width, room temperature</td>
</tr>
<tr>
<td>• Ability to position person in the chair</td>
<td>• Motivation to use the chair</td>
</tr>
<tr>
<td>• Opinion</td>
<td>• Occupations</td>
</tr>
<tr>
<td></td>
<td>• Aesthetics (look of the chair)</td>
</tr>
<tr>
<td></td>
<td>• Cost</td>
</tr>
</tbody>
</table>

Fig. 11. Key features of a seating assessment.

Fig. 12. The differences in opinion of the priority of necessary features of chairs and cushions between healthcare professions and people who remain seated for long periods of time.
### 9. Cushion covers

The selection of an appropriate cushion cover can influence seating preference. Cushion covers should be made of a material that:

- Prevents ‘hammocking’ (the cover does not conform to the shape of the cushion when seated because it is too tightly fitted)
- Enables independent transfers if appropriate for the person
- Allows air exchange to minimise the temperature and moisture between the buttocks and the cushion
- Is easy to clean
- Is removable to allow inspection of the cushion [14].

### 10. Wheelchairs

People who have difficulties walking may be prescribed a wheelchair. As with all seating equipment, there are many different varieties of wheelchairs which are outside the scope of this document. However, prescription of such equipment should be based on individual assessment [40].

### 11. Tilt, recline, and elevating leg rests in wheelchairs and static seating

For those who are at risk of pressure ulcers developing, tilt-in-space, recline and elevating leg rests in wheelchairs and chairs are sometimes useful in providing pressure relief [41,42]. In other

---

**Table 2**

<table>
<thead>
<tr>
<th>Cushion</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyurethane foam cushions</td>
<td>Relatively inexpensive</td>
<td>Lower quality foam cushions may require replacement after 6–12 months’ use</td>
</tr>
<tr>
<td></td>
<td>Soft and stable support surface</td>
<td>The cushion may only be suitable for people below a certain weight</td>
</tr>
<tr>
<td></td>
<td>Some have bacterial control within the core of the cushion</td>
<td>Poor quality foams may degrade and collapse faster</td>
</tr>
<tr>
<td></td>
<td>Quickly warms up and retains heat</td>
<td>Heat and moisture may build up between the cushion and the buttocks — hot damp skin and soft tissue may be at elevated risk of breakdown during prolonged sitting</td>
</tr>
<tr>
<td></td>
<td>Sculpted or machine-profiled foam cushions maximise the contact area between the individual and the cushion</td>
<td>If stored before use in a cold environment can feel firm until the material warms up</td>
</tr>
<tr>
<td></td>
<td>Easy to use</td>
<td>Transfers for some people can be affected due to cushion contouring to the shape of the buttocks, making the surface uneven and people feeling stuck.</td>
</tr>
<tr>
<td>Viscoelastic foam cushions</td>
<td>Contours to buttocks so in order to increase the area in contact with the cushion so that it reducing pressure.</td>
<td>Once the cushions warms up it can become too warm for some.</td>
</tr>
<tr>
<td></td>
<td>Warms up relatively quickly to enable the buttocks to sink into the cushion which helps to fix the pelvis in the seat.</td>
<td>The movement of low thickness gels may be noticeable to the person and affect their seated balance and ability to transfer from the seat.</td>
</tr>
<tr>
<td></td>
<td>Stable seat support</td>
<td>Low thickness pure gel cushions will leak if punctured.</td>
</tr>
<tr>
<td>Gel cushions</td>
<td>Contour to the shape of the buttocks so increasing the area in contact with the cushion so reducing interface pressures.</td>
<td>Can feel unstable for some people</td>
</tr>
</tbody>
</table>
|                                 | Conducts heat away from the skin surface so may feel cool to the user | May be difficult to transfer from
|                                 | Lightweight and easy to move                     | Person/carer education required to maintain optimum air flow. |
|                                 | Can provide postural support                     | Regular maintenance required to maintain correct operation |
|                                 | Air circulation may lessen heat and moisture build-up | Can be punctured |
| Air filled cushions             | Relatively inexpensive                          | Some require electricity supply. |
|                                 | Soft and stable support surface                  | Batteries require charging. |
|                                 | Some have bacterial control within the core of the cushion | As cushion provides pressure relief, the end user may not be motivated to carry out other self-help repositioning techniques. |
|                                 | Quickly warms up and retains heat                | Costly in comparison to static cushions. |
|                                 | Sculpted or machine-profiled foam cushions maximise the contact area between the individual and the cushion | People may feel unstable due to inflation and deflation of the cells. |
|                                 | Easy to use                                      | Difficulty with transfers if person feels unstable May leak if punctured. |
|                                 | Contours to buttocks so increasing the area in contact with the cushion so reducing pressure. | Takes time to warm up. |
|                                 | Comfortable.                                     | |

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**Alert**

The selection of a cushion should not be solely based on interface pressure measurements (IPM), other factors such as comfort, appearance, feel and look of the cushion, weight limit and portability of equipment are equally as important.¹⁷

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Please cite this article in press as: Stephens M, Bartley CA, Understanding the association between pressure ulcers and sitting in adults what does it mean for me and my carers? Seating guidelines for people, carers and health & social care professionals, Journal of Tissue Viability (2017), http://dx.doi.org/10.1016/j.jtv.2017.09.004
wheelchairs and chairs, the seat and backrest angles remain fixed as they are tilted backwards with the occupant remaining in the same posture as the seat and back tilt. Fig. 13 illustrates the advantages and disadvantages of tilt in space chairs and wheelchairs. It is important to note that whilst this kind of chair can be advantageous for some in can be detrimental to others. For example, breathing can be improved or worsened with the use of tilt in space depending on the individual’s circumstances. Therefore, it is imperative that a holistic assessment is made with a healthcare professional if considering this type of chair.

12. What self-help suggestions are there to assist in the prevention of pressure ulcers?

The NHS uses a five-step model based on a healthcare innovation from the USA [49], which ties together current best practice in pressure ulcer prevention and includes the following factors:

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• By tilting the position of the chair backwards by 15, 25, or 35 degrees combined with recline can reduce load and increase blood flow to the skin at the buttocks.\textsuperscript{43, 44}</td>
<td>• May have a negative effect on breathing and promote muscle spasms for some wheelchair users.</td>
</tr>
<tr>
<td>• Increases trunk and head control.</td>
<td>• Difficulty with eating and drinking.</td>
</tr>
<tr>
<td>• Improves function for example reaching.</td>
<td>• The tilt-in-space wheelchair may be incompatible with the wheelchair users’ environment, for example the height may prevent the use of tables and desks.</td>
</tr>
<tr>
<td>• Improves Visual Orientation, Speech, Alertness, Arousal, Respiration, and Eating.</td>
<td>• The space required to safely turn and move the wheelchair/chair is increased due to the position of the footplates and push- handles when in its tilted position.</td>
</tr>
<tr>
<td>• Carer can carry out personal care for example changing incontinence pads.\textsuperscript{45}</td>
<td>• Cost of equipment can be higher than other types of seating.\textsuperscript{45}</td>
</tr>
</tbody>
</table>

![Fig. 13. Advantages and Disadvantages of tilt in space chairs and wheelchairs (43–45).](image)

**ALERT**

Care must be taken with the use of the recline feature on chairs and wheelchairs as when used alone it can lead to sliding in the chair and subsequent risk of pressure ulcer development. This can also happen when the chair is returned to the upright position.\textsuperscript{46,47,48}

13. Surface

It is vitally important that the right seating equipment is used as part of a 24-hour posture and pressure management programme. For the surface to work at its best this also means:

- having minimal layers of clothing between the pelvic region and the surface of the cushion
- moving and handling equipment such as slings are not left under the buttocks when transfers have occurred
- catheters and straps from other equipment are not trapped under the buttocks, legs, back, or other sites when seated
- Taking care when positioning incontinence pads and seams of underwear.
14. Skin

Skin inspection should be carried out regularly throughout the day and can be performed by using a mirror or asking others if assistance is needed. Skin inspection should also take into consideration areas where medical equipment may be in contact with the skin too. Skin that is too moist or too dry can increase the risk of pressure ulcers. Healthcare professionals can advise people and carers on moisturisers for dry skin, and how to keep skin dry for those with incontinence or buttocks that easily become sweaty.

15. Keep moving

Guidance on repositioning when seated must be given to both carers and people with acute or long-term mobility problems. This intentional movement can be carried out in three main ways (Figs. 14 and 15) [34]. Guidelines suggest performing pressure relief every 30 min lasting 30 s for individuals who can do so independently [34]. For those requiring help, repositioning assistance can be given as advised by a healthcare professional. Advice from the NICE guidelines suggests a person who is at risk of pressure ulcers should not remain seated for longer than two hours or a person who already has an established pressure ulcer should not sit out [22]. In instances like this, you may consider lying on the bed for a short period of time to off load pressure on the areas at risk.

16. Incontinence

For those who have problems with incontinence it is important to seek advice from a healthcare professional as they can advise on the use of appropriate creams, pads, pants and other equipment.
Incontinence can increase the risk of skin breakdown around the buttocks, top of the buttock crease and tailbone. This can be either a moisture lesion or a pressure ulcer and professional healthcare advice should be sought [10].

17. Nutrition/hydration

To keep skin healthy a well-balanced diet and fluid intake is essential. This involves eating and drinking a variety of foods in the right proportions throughout the day. The NHS Eatwell guide [50] provides further information. If there is a problem with eating and drinking advice can be sought from a variety of professionals such as the doctor, dentist, dietician or speech therapist.

18. Sickness

An extra factor to consider is to be aware when a person becomes generally unwell as this increases their susceptibility to developing pressure ulcers [51]. Sickness can include:

➢ Vomiting
➢ Infection (chest, urine, throat)
➢ Influenza
➢ Changes in bowel activity (e.g. diarrhoea, constipation)
➢ Increased alcohol consumption
➢ Depression
➢ Changes of routine (long journeys, holidays)
➢ Family/life changes
➢ Deterioration in long term condition
➢ Pain

![Alert]

Some people are unable to say when they are not feeling well and the only way to recognise a change is through factors such as discomfort, changes in skin colour (paleness), breathing rate, heart rate, body temperature and non-verbal cues (changes in body movement, facial expression, and posture) may be present! [51]

19. Key seating outcomes for the long-term seated individual

For people with short or long-term mobility issues the assessment and prescription of seating equipment should take into account the persons and carers opinions and address the following outcome measures:

❖ comfort and postural stability [20,21]
❖ pressure redistribution
❖ physiological abilities e.g. breathing, swallowing, digestion [52]
❖ participation in occupations and activities such as hobbies and daily living tasks
❖ impact on the person’s quality of life [53]
❖ Communication

Due to the changing needs and expectations of people with long-term mobility issues; a routine review of their seating needs should be completed by a health professional in accordance with best practice. The most recent evidence suggests between three months and three years depending on individual factors such as health status, changing posture and weight loss or gain [17,53,54]. However, this should be sooner if a person develops pressure damage, a routine review can be requested by a carer or person directly, without involving a healthcare professional.

20. Useful resources

20.1. Tissue Viability Society

The TVS is an independent registered charity run by a body of Trustees. Their mission is to disseminate information, promote research and increase awareness of all aspects of good clinical practice in wound prevention and management.

https://tvs.org.uk/

20.2. NHS choices

A NHS website that provides a complete health information service with multiple articles, videos and tools, to help people make the best choices about their health and lifestyle.

http://www.nhs.uk/pages/home.aspx

20.3. React to red

A website devised by Coventry City Council, Coventry and Rugby Clinical Commissioning Group, University Hospital of Coventry and Warwickshire and Coventry and Warwickshire Partnership Trust which provides useful information on pressure ulcers for people, their carers and health and social are professionals.

http://www.reacttoredskin.co.uk/

We have also included a slight adaptation to their risk assessment questionnaire (see Table 3).

If you have answered yes to 3 or more or the questions asked above, you MAY be at risk of pressure ulcers developing. For a complete test consult a health care professional.

20.4. Stop the pressure

The Stop the Pressure website is a resource for health and social care professionals and people to find current information about the risk of developing pressure ulcers.

http://nhs.stopthepressure.co.uk/

20.5. NICE guidelines for the public (cg179)

Internet advice from the National Institute of Health and Care Excellence on the care and support that should be offered to people who use health and care services in regards to pressure ulcers.
20.7. **Love Great Skin**

A website about the Love Great Skin campaign, produced by Wounds UK on behalf of Midlands and East NHS to raise awareness of pressure ulcers in the care home and nursing home setting.

http://www.lovegreatskin.co.uk/

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**Figs. 1–6** were redrawn after permission from NPUAP.

**Figs. 7, 9 and 10** Used with permission of the Tissue Viability Society 2017.

**Terms and Conditions**

Based upon outcomes from stakeholder meetings and a listening event [15] the term ‘pressure ulcer’ instead of ‘pressure sore’ is used throughout this document and is in line with current evidence based literature. The term ‘people’ is used throughout to denote service user/patient which is currently the expressed preferred term by this group of stakeholders.

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**Funding**

This work was undertaken as part of a project to update the Tissue Viability Society Guidelines funded by the Tissue Viability Society. However, the views and opinions expressed therein are those of the authors and do not necessarily reflect those of the Tissue Viability Society. No funding bodies had any role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.
Conflict of interest

The authors have no conflict of interest: members of the Tissue Viability Society were involved in the stakeholder and peer review process.

Appendices

1. Methodology
2. Glossary of terminology

1. Methodology

A literature search was conducted in May and repeated in September 2016. A PICO framework was used to frame the search

Table 4
Glossary of terms.

<table>
<thead>
<tr>
<th>Word used by health professionals</th>
<th>Lay Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Ulcer</td>
<td>Pressure sore</td>
<td>An injury that breaks down the skin and underlying tissue due to pressure and/or shear forces.</td>
</tr>
<tr>
<td>Ischial Tuberosity</td>
<td>Bony bit of the buttock</td>
<td>Bony protrusion which takes the body's weight during sitting</td>
</tr>
<tr>
<td>Greater Trochanter</td>
<td>Widest part of the thigh when seated</td>
<td>Greater trochanter is the head of the femur and can be located on palpation at the lateral aspect of the thigh</td>
</tr>
<tr>
<td>Sacrum</td>
<td>Area at the top of the buttock crease</td>
<td>The sacrum is a large wedge-shaped vertebra at the inferior end of the spine</td>
</tr>
<tr>
<td>Coccyx</td>
<td>Tailbone</td>
<td>A small, triangular bone located at the bottom of the spine</td>
</tr>
<tr>
<td>Popliteal Fossa</td>
<td>Back of the knee</td>
<td>Shallow depression located at the back of the knee joint</td>
</tr>
<tr>
<td>Bony prominences</td>
<td>Areas where bones are close to the surface</td>
<td>Areas that are under the most pressure and greatest risk for developing pressure ulcers.</td>
</tr>
<tr>
<td>Scapula</td>
<td>Shoulder blade</td>
<td>Two flat, triangular bones, each forming the back part of a shoulder</td>
</tr>
<tr>
<td>Occiput</td>
<td>Back of the head</td>
<td>Back part of the head or skull</td>
</tr>
<tr>
<td>Medial aspect of knees</td>
<td>Between the knees</td>
<td>Area between the medial epicondyle of the femur and the anteromedial aspect of the tibia.</td>
</tr>
<tr>
<td>Short term mobility issue</td>
<td>Short term mobility issue</td>
<td>People who, due to ill health, injury or surgery are unable to mobilise on a temporary basis</td>
</tr>
<tr>
<td>Long term mobility issue</td>
<td>Long term mobility issue</td>
<td>People who, due to disability, ill health, injury or surgery are unable to mobilise on a long-term basis</td>
</tr>
<tr>
<td>Cognitive ability (capacity)</td>
<td>Thinking and reasoning</td>
<td>The ability to learn, remember, problem-solve, and pay attention.</td>
</tr>
<tr>
<td>Informed decision making</td>
<td>Making a decision, having considered all the relevant information</td>
<td>A decision by a person based on choice, which requires the decision to be voluntary and that the person has the capacity for choice</td>
</tr>
<tr>
<td>Disability Problems/challenges/ issues</td>
<td>Disability Issues</td>
<td>A condition or function judged to be significantly impaired relative to the usual standard of an individual or group.</td>
</tr>
<tr>
<td>Social functioning</td>
<td>Participation in conversation and social activities</td>
<td>Ability to engage in conversation and social activities whilst seated</td>
</tr>
<tr>
<td>Adults who remain seated for extended periods of time</td>
<td>Adults who remain seated for extended periods of time</td>
<td>People with a long term mobility issue or disability who are unable to independently mobilise</td>
</tr>
<tr>
<td>Patient/service user/client/people</td>
<td>People</td>
<td>Any person who has a mobility issue and requires access to health and social care professionals</td>
</tr>
<tr>
<td>Optimal seated posture</td>
<td>Best possible seated posture</td>
<td>Sit in a position where the least strain is placed on supporting muscles and ligaments during movement and activities.</td>
</tr>
<tr>
<td>Interface pressures</td>
<td>Interface pressures</td>
<td>The force per unit area that acts vertically between the body and a support surface</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>A pleasing appearance that looks and feels nice</td>
<td>The appearance of the equipment used in seating</td>
</tr>
<tr>
<td>Occupations</td>
<td>Things that people do</td>
<td>Activities that people do on a daily basis such as work, leisure, activities of daily living</td>
</tr>
<tr>
<td>Scoliosis</td>
<td>Curvature of the spine</td>
<td>Abnormal, sideways curvature of the spine which can be ‘s’ or ‘c’ shaped</td>
</tr>
<tr>
<td>Kyphosis</td>
<td>Curvature of the spine</td>
<td>Excessive outward curvature of the spine, causing hunching of the back.</td>
</tr>
<tr>
<td>Lordosis</td>
<td>Curvature of the spine</td>
<td>Excessive inward curvature of the spine</td>
</tr>
<tr>
<td>Full forward lean</td>
<td>Full forward lean</td>
<td>To lean forward from a sitting position until the chest comes to rest on the knees</td>
</tr>
<tr>
<td>Intermediate forward lean</td>
<td>Tilt forward</td>
<td>To lean forward from a sitting position in order to offload pressure from the ischial tuberosities</td>
</tr>
<tr>
<td>Sideways lean</td>
<td>Sideways lean</td>
<td>Lean sideways from a sitting position in order to offload pressure form one buttock</td>
</tr>
<tr>
<td>Physiological changes</td>
<td>Physiological changes</td>
<td>Change in a person's blood pressure, pulse, temperature, respiration in response to illness or pain</td>
</tr>
<tr>
<td>Static seat/chair</td>
<td>A chair</td>
<td>A specialist piece of equipment used in the 24-hour posture and pressure management of an individual who has short or long term mobility issues</td>
</tr>
</tbody>
</table>

References


